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# CHAPTER 1

## INTRODUCTION

### **1.1 Purpose**

Federal Meteorological Handbook No.1, *Surface Weather Observations and Reports* (FMH-1) defines the observing, reporting, and coding standards for surface based meteorological reports. These standards are applicable to all Federal agency programs. These standards do not inhibit agencies from doing more than is specified.

### **1.2 Applicability of Standards**

Standards described in this Handbook are applicable only if a station has the capability to comply. The phrase "at designated stations" refers to observing stations instructed by their responsible agency to perform a specified task. These specified tasks shall be performed in accordance with the standards described in this Handbook.

This Handbook is applicable to stations taking the following types of observations:

- a. Automated - automated surface weather observing systems that prepare the meteorological reports for transmission without a certified weather observer.
- b. Augmented - automated surface weather observing systems that prepare the meteorological reports for transmission with certified weather observers signed-on to the system to add information to the observation.
- c. Manual - certified weather observers are responsible for the meteorological observations.

### **1.3 Relation to Other Handbooks and Manuals**

Individual agencies shall issue their own manuals defining their observing procedures which implement the FMH-1 standards. Such manuals shall complement, not change, the standards contained in FMH-1. Most observing standards described in this Handbook also apply to synoptic surface observations which have coding and reporting procedures described in Federal Meteorological Handbook No.2, *Surface Synoptic Codes* (FMH-2). FMH-1 is consistent with agreements and publications of the World Meteorological Organization (WMO), the International Civil Aviation Organization (ICAO), specifically WMO No. 306 - *Manual on Codes*, and ICAO Annex 3 - *Meteorological Services for International Air Navigation*, and civil as well as military weather services.

### **1.4 Format of This Handbook**

Chapter 1 presents an introductory overview of surface weather observations.

Chapter 2 discusses the surface weather observation program, types of observations, criteria for specials, general observing standards, and dissemination.

Chapter 3 presents the certification and quality control standards. It discusses certification of observers and quality control performed on-site, and at remote locations.

Chapter 4 defines the requirements for maintaining records of surface weather data. It discusses the types of records, preparation and maintenance of the Station Information File, types of storage, and procedures for maintaining records of surface weather data.

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Chapters 5 through 11 focus on a specific element (e.g., Visibility is an element) and all the associated parameters (e.g., Prevailing Visibility and Sector Visibility are visibility parameters) of that element that appear in the weather report. The elements are: Wind (Chapter 5), Visibility (Chapter 6), Runway Visual Range (Chapter 7), Present Weather (Chapter 8), Sky Condition (Chapter 9), Temperature and Dew Point (Chapter 10), and Pressure (Chapter 11). Each chapter contains a similar format: a brief overview of the chapter, a section that describes parameters, and a section that defines further the observing and reporting standards for the reports. Each chapter also contains a Summary Table that offers an abridged listing of standards described in the chapter. By design, these summary tables do not contain all of the details found in the text. Therefore, these tables should only be used as an overview of the standards contained in the chapter.

Chapter 12 defines the coding procedures for reports in the METAR/SPECI format.

Appendix A is a Glossary.

Appendix B is a list of Abbreviations and Acronyms.

Appendix C lists Sensor Standards.

Appendix D contains Runway Visual Range Tables.

Throughout this Handbook, the following definitions apply:

- a. "shall" indicates a standard is mandatory.
- b. "should" indicates a standard is recommended.
- c. "may" indicates a standard is optional.
- d. "will" indicates futurity; it is not a requirement to be applied to standards.

## **1.5 Changes to The Handbook**

Changes, additions, deletions, and corrections will be issued, as necessary. These changes shall be issued only by the Office of the Federal Coordinator for Meteorology (OFCM) after consultation and coordination with the Working Group for Surface Observations (WG/SO).

## **1.6 Agency Procedures and Procedural Changes**

Agencies shall issue manuals and directives to provide more detailed instructions and training to their personnel and users (see paragraph 1.3). Copies of these procedures shall be provided to the reference library (see paragraph 1.7). Agencies may also issue changes to their procedures as follows:

- a. Routine procedural changes that are in conformance with FMH-1 may be issued by an agency at any time without coordination with the WG/SO.
- b. Procedural changes not in conformance with FMH-1 shall be coordinated with the WG/SO when time allows. However, when necessary to meet urgent requirements, procedural changes not in conformance with FMH-1 may be issued by an agency without coordination with the WG/SO. Copies of changes shall be forwarded to the WG/SO for coordination and appropriate action.

## **1.7 Reference Library**

The WG/SO shall maintain a record and library of agency procedures, changes, and supplements issued by all participating agencies. The WG/SO shall establish a procedure for making these procedures, changes, and supplements available to users.

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## **1.8 Unforeseen Requirements**

No set of instructions can cover all possibilities in weather observing. Observers must use their own judgment, adhering as closely as possible to this Handbook and agency operating procedures, to describe phenomena not adequately covered by specific instructions. If the observer believes Handbook procedures require change or clarification, suggested changes should be sent through normal administrative channels to the headquarters of the appropriate organization.

## **1.9 Other Questions and Suggestions Regarding FMH-1**

Questions or suggestions about the content or organization of this Handbook should be directed to:

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